Notic of Allowability	Application No.	Applicant(s)	
	09/513,702	MUKAIHARA ET AL.	
	Examiner	Art Unit	
	Delma R. Flores Ruiz	2828	

-- The MAILING DATE of this communication appears on th cover sh et with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *3/22/2004*.

2. ☒ The allowed claim(s) is/are *1-30*.

3. ☒ The drawings filed on *2/25/2000* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) f each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: claim 1 has been allowed over the prior art because they fail to teach a semiconductor laser device comprising; a resonator cavity having a first end face and a second end face, and comprising a cavity portion between the first and second end faces, ***the cavity portion having a length greater than 1200 μm and a width along the entire length that can only support a single transverse mode; a laminated structure of semiconductor material formed on a substrate and including a lower cladding layer, an active layer disposed over the lower cladding layer, and an upper cladding layer disposed over the active layer, the active layer comprising at least one quantum well structure, the upper cladding layer having a mesa stripe that is oriented along the cavity length, the top of the mesa stripe being configured to receive current applied to the laser device, said resonator cavity comprising at least a portion of said laminated structure at least one cover layer disposed over at least one portion of the upper cladding layer and adjacent to the mesa stripe; a low-reflection film formed having a reflectance of 5% or less on one end face of th structure; and a high-reflecti n film having a refl ctance of 80% or more form d on th oth r nd face of th structure; and wh rein th s miconductor***

layer device has intervals between adjacent longitudinal oscillation modes, at least one of the intervals being equal ot or less than 0.12 nm.

The following is an examiner's statement of reasons for allowance: claim 29 has been allowed over the prior art because they fail to teach a semiconductor laser device comprising; a resonator cavity having a first end face and a second end face, and comprising a cavity portion between the first and second end faces, ***the cavity portion having a length greater than 1200 μm and a width at each along the length of the cavity portion that can only support a single transverse mode; a laminated structure of semiconductor material formed on a substrate and including a lower cladding layer, an active layer disposed over the lower cladding layer, and an upper cladding layer disposed over the active layer, the active layer comprising at least one quantum well structure, the upper cladding layer having a mesa stripe that is oriented along the cavity length, the top of the mesa stripe being configured to receive current applied to the laser device, said resonator cavity comprising at least a portion of said laminated structure at least one cover layer disposed over at least one portion of the upper cladding layer and adjacent to the mesa stripe; a low-reflection film formed having a reflectance of 5% or less on one end face of the structure; and a high-reflection film having a reflectance of 80% or more form d on the other nd fac of the structure; and wherein th semiconductor lay r d vic has intervals between adjac nt longitudinal***

oscillation modes, at least one of the intervals being equal ot or less than 0.12 nm.

Claims 2 – 28 and 30 has been found allowable due to their dependency on claims 1 and 29.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reason for Allowance".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) -272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Delma R. Flores Ruiz
Examiner
Art Unit 2828

DRFR/DW
May 27, 2004

Don Wong
Supervisor Patent Examiner
Art Unit 2828

DAVID VU
PRIMARY EXAMINER